LISTING OF THE CLAIMS

The present listing of the claims supersedes any previous listing of the claims.

1. (Cancel)

2-4. (Previously Canceled)

5-6. (Cancel)

7. (Currently amended) A stress sensor comprising:

a first electrode;

at least one other electrode; and

a dielectric layer disposed in relation to the first and the at least one other electrode for the electrodes to supply an electric field (E) to the dielectric layer, wherein the dielectric layer comprises a diamond-like carbon film that exhibits a change in conductivity when exposed to an electric field (E) at a level above a critical electric field (E*), wherein the critical electric field (E*) of the diamond-like film shifts under an applied stress, and [The stress sensor of claim 5,] wherein the critical electric field (E*) comprises about $2x10^5$ V/cm.

8-10 (Cancel)

11. (Currently Amended) A stress sensor comprising:

a first electrode;

at least one other electrode; and

a dielectric layer disposed in relation to the first and the at least one other electrode for the electrodes to supply an electric field (E) to the dielectric layer, wherein the dielectric layer comprises a diamond-like carbon film that exhibits a change in conductivity when exposed to an electric field (E) at a level above a critical electric field (E*), wherein the critical electric field (E*) of the diamond-like film shifts under an applied stress, and [The stress sensor of claim 5,] wherein compressive forces on the diamond-like carbon film lowers the value of the critical electric field (E*) and wherein tensile forces on the diamond-like carbon film increases the value of the critical electric field (E*).

12-17 (Cancel)

18. (Currently amended) A stress sensor comprising:

a first electrode;

at least one other electrode; and

a dielectric layer disposed in relation to the first and the at least one other electrode for the electrodes to supply an electric field (E) to the dielectric layer, wherein the dielectric layer comprises a diamond-like carbon film that exhibits a change in conductivity when exposed to an electric field (E) at a level above a critical electric field (E*), wherein the critical electric field (E*) of the diamond-like film shifts under an applied stress, and [The stress sensor of claim 17,] wherein the diamond-like carbon film has a thickness and the electrodes are disposed laterally with respect to each other a distance no greater than the thickness of the diamond-like carbon film.

19-20 (Cancel)

21. (Currently amended) A stress sensor comprising:

a first electrode;

a plurality of other electrodes; and

a dielectric layer disposed in relation to the first and the at least one other electrode for the electrodes to supply an electric field (E) to the dielectric layer, wherein the dielectric layer comprises a diamond-like carbon film that exhibits a change in conductivity when exposed to an electric field (E) at a level above a critical electric field (E*), wherein the critical electric field (E*) of the diamond-like film shifts under an applied stress, and [The stress sensor of claim 5, comprising a plurality of the other electrodes,] wherein the diamond-like carbon film is deposited onto a surface of a structure being measured for stress as a continuous layer to serve as a sensing layer for the plurality of the other electrodes.

22-23 (Cancel)

24. (Currently amended) A method for determining whether a particular level of stress has been applied to a structure using [the stress sensor of claim 5,] a stress sensor comprising:

a first electrode;

at least one other electrode; and

a dielectric layer disposed in relation to the first and the at least one other electrode for the electrodes to supply an electric field (E) to the dielectric layer, wherein the dielectric layer comprises a diamond-like carbon film that exhibits a change in conductivity when exposed to an electric field (E) at a level above a critical electric field (E*), wherein the critical electric field (E*) of the diamond-like film shifts under an applied stress,

the method comprising:

applying an electric field (E) with the first electrode and the at least one other electrode to the dielectric layer;

monitoring the conductivity of the dielectric layer; and

determining whether the particular level of stress has been applied to the structure based on a change in the conductivity of the dielectric layer.

25. (Previously Presented) The method of claim 24, comprising determining whether the particular level of stress has been applied based on a shift in the critical electric field (E*) of the dielectric layer resulting from the applied stress.

26. (Previously Presented) The method of claim 25, comprising applying an electric field (E) at a level less than the critical electric field (E*) and determining whether a particular compressive stress has been applied to the structure based on a change in the conductivity of the dielectric layer which results from a shift in the critical electric field (E*) of the dielectric layer as a result of the compressive stress.

27. (Previously Presented) The method of claim 26, comprising determining whether a particular compressive stress has been applied to the structure based on a change in conductivity of the dielectric layer which results from a shift in the critical electric field (E*) of the dielectric layer to that less than the electric field (E) applied.

28. (Previously Presented) The method of claim 25, comprising applying an electric field (E) at a level greater than the critical electric field (E*) and determining whether a particular tensile stress has been applied to the structure based on a change in the conductivity of the dielectric layer which results from a shift in the critical electric field (E*) of the dielectric layer as a result of the tensile stress.

29. (Previously Presented) The method of claim 28, comprising determining whether a particular tensile stress has been applied to the structure based on a change in conductivity of the dielectric layer which results from a shift in the critical electric field (E*) of the dielectric layer to that greater than the electric field (E) applied.